CLAIMS

1. Method for the process control or process regulation of an installation for the shaping, cooling, and/or heat treatment of metal, wherein the installation is equipped with actuators for setting specific operating parameters and the method process is based on a method model, and wherein at least one current value that provides information about the metal microstructure is detected online, and, depending on this value, suitable process control and/or process regulation variables for acting on actuators for adjusting desired microstructural properties of the metal are determined with the use of a microstructure model and with the use of the method model that is the basis of the process.

2. Method in accordance with Claim 1, characterized by the fact that an online adaptation of the method model and/or the microstructure model is carried out as a function of the detected value that provides information about the microstructure.

3. Method in accordance with Claim 1, characterized by the fact that a current microstructural grain size value is detected as the value that provides information about the microstructure.

4. Method in accordance with Claim 3, characterized by the

fact that the austenitic grain size is determined as the microstructural grain size value.

5. Method in accordance with any of Claims 1 to 4, characterized by the fact that a current microstructural grain size value is detected at the end of the installation for the shaping, cooling, and/or heat treatment of metal.

6. Method in accordance with any of Claims 1 to 5, characterized by the fact that a current microstructural grain size value is detected during the process for shaping, cooling, and/or heat treatment of metal, and the process control or process regulation variables determined as a function of this value act on the actuators of preceding process steps.

7. Method in accordance with any of Claims 1 to 6, characterized by the fact that a microstructural transformation time or the microstructural transformation time interval is detected online as the value that provides information about the microstructure by means of measuring devices in contact with the metal.

8. Method in accordance with any of Claims 1 to 7, characterized by the fact that the transformation temperature is detected online as the value that provides information about the microstructure by means of one or more detection units, which

are arranged longitudinally with respect to the direction of metal conveyance in a way that allows their relative movement and are positioned as a function of the expected site of the microstructrual transformation predicted by the microstructure model.

9. Method in accordance with Claim 8, characterized by the fact that several detection units are used to detect the site or the time interval of the beginning and end of the microstructural transformation.

10. Method in accordance with any of Claims 1 to 9, characterized by the fact that online microstructural control is carried out in a cooling line of a wire mill with a water-cooled segment of the cooling line and an air-cooled segment of the cooling line, wherein a current microstructural grain size value of the metal wire is detected after passage through the water-cooled segment of the cooling line by means of an ultrasonic measuring instrument, and wherein the temperature of a microstructural transformation and the course of the microstructural transformation, especially the γ-α transformation of steel, with respect to time is detected with temperature measuring devices that can be moved in the direction of conveyance and/or variably oriented.